

[0055] In an embodiment, the apparatus **600** may be or be comprised in a base station or access node/point of a wireless network, such as WLAN (IEEE 802.11). In an embodiment, the apparatus **600** is or is comprised in the access node/point **100**. However, in an embodiment, the apparatus **600** is comprised in a non-AP wireless station, such as in a STA.

[0056] The control circuitry **602** may comprise a dual control frame generation circuitry **610** for performing the functionalities related to the generation of the first message and of the second message, according to any of the embodiments. A communication control circuitry **612** may be, e.g., for establishing the angular sector from which data is received and/or transmitted, for performing omni-directional transmission of the first message for performing directional transmission of the second message, and for applying the directional data communication link **112/116**.

[0057] In an embodiment, the apparatus **700** may comprise the terminal device of a wireless network system, e.g. a user equipment (STA), a user terminal (UT), a computer (PC), a laptop, a tablet computer, a cellular phone, a mobile phone, a communicator, a smart phone, a palm computer, or any other communication apparatus. Alternatively, the apparatus **700** is comprised in such a terminal device. Further, the apparatus **700** may be or comprise a module (to be attached to the apparatus) providing connectivity, such as a plug-in unit, an "USB dongle", or any other kind of unit. The unit may be installed either inside the apparatus or attached to the apparatus with a connector or even wirelessly. In an embodiment, the apparatus **700** may be, comprise or be comprised in a wireless device, such as the STA/STA **104**. However, in an embodiment, the apparatus **700** may be comprised in an access point of the IEEE 802.11, for example.

[0058] The control circuitry **702** may comprise a communication control circuitry **710** for determining whether to start or to restrain from data communication. The communication control circuitry **710** may also be responsible of determining the angular direction to which the directional communication link is to be established towards the AP **100**, for example.

[0059] As used in this application, the term 'circuitry' refers to all of the following: (a) hardware-only circuit implementations, such as implementations in only analog and/or digital circuitry, and (b) combinations of circuits and software (and/or firmware), such as (as applicable): (i) a combination of processor(s) or (ii) portions of processor(s)/software including digital signal processor(s), software, and memory (ies) that work together to cause an apparatus to perform various functions, and (c) circuits, such as a microprocessor (s) or a portion of a microprocessor(s), that require software or firmware for operation, even if the software or firmware is not physically present. This definition of 'circuitry' applies to all uses of this term in this application. As a further example, as used in this application, the term 'circuitry' would also cover an implementation of merely a processor (or multiple processors) or a portion of a processor and its (or their) accompanying software and/or firmware. The term 'circuitry' would also cover, for example and if applicable to the particular element, a baseband integrated circuit or applications processor integrated circuit for a mobile phone or a similar integrated circuit in a server, a cellular network device, or another network device.

[0060] The techniques and methods described herein may be implemented by various means. For example, these techniques may be implemented in hardware (one or more devices), firmware (one or more devices), software (one or

more modules), or combinations thereof. For a hardware implementation, the apparatus(es) of embodiments may be implemented within one or more application-specific integrated circuits (ASICs), digital signal processors (DSPs), digital signal processing devices (DSPDs), programmable logic devices (PLDs), field programmable gate arrays (FPGAs), processors, controllers, micro-controllers, microprocessors, other electronic units designed to perform the functions described herein, or a combination thereof. For firmware or software, the implementation can be carried out through modules of at least one chip set (e.g. procedures, functions, and so on) that perform the functions described herein. The software codes may be stored in a memory unit and executed by processors. The memory unit may be implemented within the processor or externally to the processor. In the latter case, it can be communicatively coupled to the processor via various means, as is known in the art. Additionally, the components of the systems described herein may be rearranged and/or complemented by additional components in order to facilitate the achievements of the various aspects, etc., described with regard thereto, and they are not limited to the precise configurations set forth in the given figures, as will be appreciated by one skilled in the art.

[0061] Embodiments as described may also be carried out in the form of a computer process defined by a computer program. The computer program may be in source code form, object code form, or in some intermediate form, and it may be stored in some sort of carrier, which may be any entity or device capable of carrying the program. For example, the computer program may be stored on a computer program distribution medium readable by a computer or a processor. The computer program medium may be, for example but not limited to, a record medium, computer memory, read-only memory, electrical carrier signal, telecommunications signal, and software distribution package, for example. Coding of software for carrying out the embodiments as shown and described is well within the scope of a person of ordinary skill in the art.

[0062] Even though the invention has been described above with reference to an example according to the accompanying drawings, it is clear that the invention is not restricted thereto but can be modified in several ways within the scope of the appended claims. Therefore, all words and expressions should be interpreted broadly and they are intended to illustrate, not to restrict, the embodiment. It will be obvious to a person skilled in the art that, as technology advances, the inventive concept can be implemented in various ways. Further, it is clear to a person skilled in the art that the described embodiments may, but are not required to, be combined with other embodiments in various ways.

1. A method, comprising:

- receiving, by a target node of a wireless access network, a signal from a first source node;
- determining the angular sector in which the first source node is located with respect to the target node;
- responding to the signal by both transmitting a first message omni-directionally and transmitting a second message directionally towards the angular sector; and
- establishing a first resource reservation on a frequency channel at least partly on the basis of transmitting the first message and the second message, wherein the first resource reservation is for performing directional data transfer with the first source node.